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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/071,456	02/08/2002	David L. Dickerson	MI22-1943	9958

21567 7590 06/10/2003
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EXAMINER
MAI, ANH D

ART UNIT	PAPER NUMBER
2814	

DATE MAILED: 06/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/071,456

Applicant(s)

DICKERSON ET AL.

Examiner

Anh D. Mai

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 May 2003.
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 55-74 is/are pending in the application.
4a) Of the above claim(s) 55-68 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.

- 6) ☒ Claim(s) 69-74 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.

- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____

- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 21, 2003 has been entered.

Status of the Claims

2. Amendment filed May 21, 2003 has been entered as Paper No. 16. Claims 1-54 have been canceled. Claim 69 has been amended. Claims 73 and 74 have been added. Claims 55-74 are pending. Claims 55-68 have been withdrawn.

Response to Amendment

3. The amendment filed May 21, 2003 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: "wherein the first curved corners of the portion are elevationally above and between the sidewalls of the trench".

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 73 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

There does not appear to be a **written description** of the claim limitation "the first curved corners of the portion are elevationally above and between the sidewalls of the trench" in the application as filed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 69-74 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by P.C. Fazan et al., *A Highly Manufacturable Trench Isolation Process for Deep Submicron DRAMs*, of record.

Fazan teaches a semiconductor construction as claimed including:
a semiconductor substrate (Silicon) having a trench extending partially therein and upper surfaces adjacent the trench;

an oxide layer (Gate oxide) formed over the upper surfaces of the semiconductor substrate (Silicon) and having an uppermost surface;
and an insulative material (Field oxide) filling the trench and having a portion outward of the trench and semiconductor substrate, the portion comprising an outermost upper surface elevationally above the uppermost surface of the oxide layer and sidewalls connecting the outermost upper surface with the oxide layer, the connection between the sidewalls and the outermost upper surface comprising first curved corners, and the connection between the sidewalls and the oxide layer comprising second curved corners extending from elevationally above the oxide layer downward to the uppermost surface of the oxide layer. (See Fig. 1f).

With respect to claim 70, the insulative material (Field oxide) of Fazan comprises oxide.

With respect to claim 71, the insulative material of Fazan comprises a first insulative material (thermal oxide) partially filling the trench and a second insulative material (CVD oxide) formed over the first insulative material.

With respect to claim 72, the semiconductor construction of Fazan further comprising a polysilicon layer (Gate poly-si) formed against the uppermost surface of the oxide layer (Gate oxide) and the portion of the insulative material (Field oxide).

With respect to claim 73, the trench of Fazan comprises sidewalls connected by a bottom wall, and the first curved corners of the portion are elevationally above and between the sidewalls of the trench.

With respect to claim 74, the trench of Fazan comprises sidewalls connected by a bottom wall, and the first curved corners of the portion are directly over the bottom wall of the trench.

Response to Arguments

6. Applicant's arguments with respect to claims 49-54 have been considered but are moot in view of the new ground(s) of rejection.

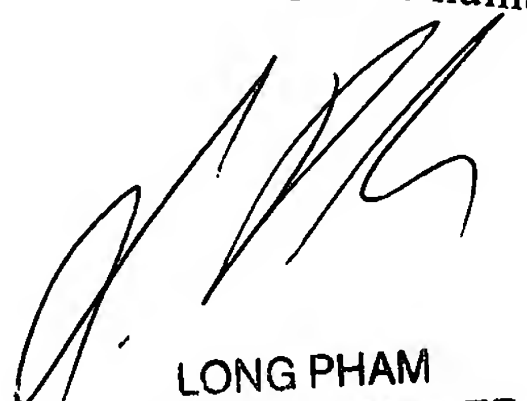
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh D. Mai whose telephone number is (703) 305-0575. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (703) 308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

A.M
June 5, 2003


LONG PHAM
PRIMARY EXAMINER